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ANIMAL FEED

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(56) Prior Art Documents
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(57) Claim

1. A substantially dustless livestock feed composition comprising:

(1) a carrier feed

(2) a calcium salt or mixture of calcium salt in a total amount up to 97% by weight of the total composition and

(3) an amount of up to 2% by weight of the total composition of a polyoxyethylated castor oil as an emulsifier.

15. A concentrate for combination with a livestock carrier feed to provide a dustless livestock feed composition according to Claim 1; said concentrate comprising:

(1) a calcium salt or mixture thereof; and

(2) up to 2% by weight of the concentrate of a polyoxyethylated castor oil as emulsifier.

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COMPLETE SPECIFICATION

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ORIGINAL

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PL3252 dated 29/6/92
and PL3474 dated 10/7/92

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

This invention relates to a livestock feed having improved anti-static and dust control properties.

Livestock feeds are frequently combined with anti-bacterial agents and the like prior to use. However, there is a considerable danger of flammability and explosion during mixing. Furthermore, due to the inherent granulometric characteristics of the anti-bacterial agents, the resulting livestock feed generally gives rise to undesirable high levels of dust. Most of the conventional livestock feeds used in industry tend to crumble when pulverized and this can lead to dust inhalation by process workers. Some of the additives contain selenium based or other compounds which cause respiratory disorders and other illnesses in humans. The high levels of dust in feed also results in the inevitable loss of valuable livestock feed in windy areas. In addition, livestock feeds of this type result in uneven and unhomogeneous blending of active materials resulting in over-dosing in some animals and under-dosing in others. It has been proposed to incorporate calcium supplements in livestock feed, for example, horse feed. However, the problems of dust are in that case exacerbated.

In order to overcome these problems, conventional feed products are manufactured in pellet form. However, pelleting limits vitamin and mineral content, especially calcium to unacceptably low levels.

It is an object of the present invention to provide a livestock feed which avoids or at least ameliorates some of the above discussed disadvantages of the prior art.

In a preferred embodiment, the present invention provides a livestock feed composition which is a substantially dustless calcium containing feed having improved anti-static properties.

According to one aspect, the invention consists in a substantially dustless livestock feed composition comprising:

(1) a carrier feed;

(2) a calcium salt or mixture of calcium salts in a total amount up to 97% by weight of the total composition; and

(3) an amount of up to 2% by weight of the total composition of a polyoxyethylated castor oil as an emulsifier.

According to a second aspect, the invention consists in a concentrate for combination with a livestock carrier feed to provide a dustless livestock feed composition according to the first aspect, said concentrate comprising:

(1) a calcium salt or a mixture thereof; and

(2) up to 2% by weight of the concentrate of a polyoxyethylated castor oil as a emulsifier.

Compositions according to the invention typically include a meal or flour foodstuff in a proportion which depends upon the foodstuff and the type and number of animals to be fed.

In one preferred embodiment of the present invention, the composition or concentrate further comprises a vitamin and/or mineral or combination of vitamins

and/or minerals in a total amount up to 0.1% and more preferably in the range of from 0.01% to 0.09% by weight of the total feed product. Although any vitamin or mineral can be used in the livestock feed, a combination of vitamin A and vitamin D_3 in a ratio of 5:1 is preferred. The vitamin and mineral component can by altered and different blends can by used depending on the intended use.

The composition or concentrate may also comprise skim milk powder in an amount of up to 7% and more preferably up to 5% by weight of the total feed product.

Desirably, vanilla powder is added to the feed for improved flavour in an amount of up to 0.07% and more preferably up to 0.05% by weight of the feed product.

The feed composition or concentrate may further comprise of one or more additives such as those selected from the group consisting of antibacterial, antibiotic, anthelmintic, antifungal, anticoccidial, antiseptic, probiotic, enzyme or a combination thereof.

Highly preferred embodiments of the invention comprise one or more additives selected from the group consisting of antibacterial, antibiotic, anthelmintic, antifungal, anticoccidial, antiseptic, probiotic, enzyme, or a combination thereof whose granulometric characteristic is 80 mesh for at least 90% by weight of the additive, said additive being present in an amount of between 0.001% and 90% by weight of the feed.

Calcium gluconate and calcium carbonate are the preferred calcium salts used in the present invention. In a preferred embodiment, the composition or concentrate comprises calcium gluconate in an amount of up to 7% and more preferably up to 5% by weight of the feed product and calcium carbonate in an amount of up to 90% by weight of the feed product. The total composition of calcium salts is desirably present in an

amount up to 97% by weight of the feed product. The composition can be in powder form and maintains a high calcium level with reduced dust and improved anti-static properties. A further advantage is that the composition reduces adhesion to containers or mixers and consequently reduces the potential for wastage or contamination of succeeding batches.

It has been found that the addition of the emulsifier reduces the static and thus explosion hazard as well as greatly simplifies the efficient mixing of the additive with the feed product while not detracting from its value as a feed.

Desirably, the emulsifier is used in the present invention in an amount of up to 1.5% by weight of the total feed product.

The livestock composition further comprises a carrier feed or feed flour. Desirably, a glycol, for example propylene glycol, glycerol or polyethylene glycol is added to the feed carriers ----------

The application of this livestock feed composition has been found to improve the uniformity of the blend composition to provide a vitamin and mineral enriched free flowing, dustless meal with desirable handling properties.

Embodiments of the present invention will now be described by way of examples only.

In one embodiment of the invention, a meal or flour is first loaded into a blender of the type normally employed for the blending of powder-like substances. Suitable meals would be protinic meals, cereal meals, flours, bran, yeast protein, oil-seed extraction residues and the like. The flours may be ground so that at least 80% by weight is less than 80 mesh. The meal is then combined with the concentrate from Example 1, 2 or 3.

Example 1

Vitamin A + D_3 500/100	0.880
Vanilla Powder	0.500
Calcium Gluconate	50.000
Skim Milk	50.000
Polyoxyethylated Castor Oil	15.000
Calcium Carbonate	883.620
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	1 KG

Example 2

3-Methyl Quinoxaline-N-1,4-N-Dioxide 2-Carboxyamide	105 grams
Polyoxyethylated Castor Oil	15 grams
Calcium Carbonate (0.1-0.3 mm)	880 grams
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	1 KG

Example 3

Sodium Selenite (44% Se)	45.5
Calcium Carbonate	506.5
Sodium Chloride	440.0
Polyoxyethylated Castor Oil	8.0
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	1 KG

The components of Example 1 is especially suitable as feed supplement for horses while composition of Example 2 is especially suitable for pigs.

The concentrate of example 2 is mixed with feed at the following rates:-

For pigs less than 35 Kgs. body weight the concentrate is added to the feed meal at 100 ppm. For pigs over 35 Kgs. body weight (50 ppm).

For horses the following amounts of the concentrate of example 1 are mixed in wet or dry feed.

	Concentrate
Horses in Work	60 to 90 g per day
Spelling Horses	30 g per day
Lactating Horses	60 to 90 g per day
Dry Mares	30 g per day
Yearlings	60 g per day
Weanlings	30 g per day

The application of the composition to the food has been found to provide a free flowing, dustless food with desirable handling properties.

As will be apparent to those skilled in the art from the teaching hereof, other anti-fungal, anti-biotic, anthelmintic and the like additives can be incorporated with the feed, using concentrate in accordance with the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A substantially dustless livestock feed composition comprising:

(1) a carrier feed

(2) a calcium salt or mixture of calcium salt in a total amount up to 97% by weight of the total composition and

(3) an amount of up to 2% by weight of the total composition of a polyoxyethylated castor oil as an emulsifier.

2. A composition according to claim 1 further comprising a vitamin and/or mineral supplement.

3. A composition according to claim 2 wherein the vitamin and/or mineral supplement is present in the range of up to 0.1% by weight of the total composition.

4. A composition according to any one of the preceding claims further comprising skim milk powder in an amount of up to 10% by weight of the total composition.

5. A composition according to claim 4 wherein the skim milk powder is present in an amount of up to 5% by weight of the total composition.

6. A composition according to any one of the preceding claims further comprising one or more additives selected from the group consisting of antibacterial, antibiotic, anthelmintic, antifungal, anticoccidial, antiseptic, probiotic, enzyme or combinations thereof.

7. A composition according to claim 6 wherein the additive is present in an amount from 0.001% to 90% by weight of the total composition.

8. A composition according to any one of the preceding claims wherein the calcium salt is selected from the group consisting of calcium gluconate and calcium carbonate and combinations thereof.

9. A composition according to any one of the preceding claims wherein the calcium salt comprises calcium gluconate in an amount up to 7% by weight of the total composition and calcium carbonate in an amount of up to 90% by weight of the total composition.

10. A composition according to any one of the preceding claims wherein the emulsifier is present in an amount of up to 1.5% by weight of the total composition.

11. A composition according to claim 2 or claim 3 wherein the vitamin and mineral supplement is selected from the group consisting of vitamin A and vitamin D_3.

12. A composition according to any one of the preceding claims wherein the carrier feed comprises a feed meal or flour.

13. A dustless calcium feed product for pigs substantially as herein described with reference to any one of the accompanying examples.

14. A dustless calcium feed product for horses substantially as herein described with reference to any one of the accompanying examples.

15. A concentrate for combination with a livestock carrier feed to provide a dustless livestock feed composition according to Claim 1; said concentrate comprising:

(1) a calcium salt or mixture thereof; and

(2) up to 2% by weight of the concentrate of a polyoxyethylated castor oil as emulsifier.

16. A concentrate according to Claims 15 further comprising a vitamin supplement or mineral supplement or mixture thereof.

17. A concentrate according to claim 15 or 16 further comprising skim milk.

18. A concentrate according to any one of claims 15 to 17 further comprising one or more additives selected from the group consisting of antibacterial, antibiotic, anthelmintic, antifungal, anticoccidial, antiseptic, probiotic, enzyme or combinations thereof.

19. A concentrate according to any one of claims 15 to 18 wherein the calcium salt is selected from the group consisting of calcium gluconate, calcium carbonate and combinations thereof.

20. A concentrate according to any one of claims 15 to 19 wherein the calcium salt comprises up to 93.4% by weight of the concentrate.

21. A concentrate according to any one of claims 15 to 20 wherein the emulsifier is present in an amount of up to 1.5% by weight of the concentrate.

22. A concentrate according to any one of claims 15 to 20 further comprising a selenium salt.

23. A concentrate substantially as herein described with reference to any one of examples 1 to 3.

24. A method of manufacture of a livestock feed comprising the step of combining a concentrate according to any one of claims 15 to 23 with a carrier feed.

25. A method according to Claim 24 wherein the carrier feed comprises a meal or flour.

26. A method for treating a horse comprising oral administration of from 30 to 90 grams per day of a concentrate according to any one of claims 15 to 23.

27. A method for treating a horse comprising oral administration of from 30 to 90 grams per day of a concentrate according to any one of claims 15 to 23 in combination with a carrier feed.

28. A method for treating a pig comprising oral administration of an animal feed carrier comprising from 50 to 100 ppm of a concentrate according to any one of claims 15 to 23.

29. A method of feeding livestock comprising oral administration of a feed supplement substantially as herein described with reference to any one of the examples.

DATED this 3rd day of October, 1995
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ABSTRACT

The present invention relates to a substantially dustless livestock feed composition comprising:

(1) a carrier feed

(2) a calcium salt or mixture of calcium salts in a total amount up to 97% by weight of the total composition and

(3) an amount of up to 2% by weight of the total composition of a non-ionic solubilizer, emulsifier or surfactant selected from the group consisting of mono-esters derived from reaction of propylene glycol with an alimentary fatty acid; esters derived from reaction of a mono- or di-glyceride with an alimentary fatty acid; esters derived from reaction of a mono- or di-glyceride with acetic, lactic, citric, tartaric, or monoacetyltartaric acid; glycerol-polyethylene glycol ricinoleate; esters derived from reaction of polyethylene glycol with soybean oil fatty acid; sorbitan monostearate; sorbitan tristearate; sorbitan monolaurate; sorbitan mono-oleate; sorbitan monopalmitate; polyoxyethylated castor oil; propylene glycol alginate, glycols, and combinations thereof.